

in the Lundell Herbarium at the University of Texas. The plants were extremely common, in colonies of thousands of individuals, all uniform in every character. The general aspect is that of V. arvensis Murr., but the upper leaves and the middle lobe of the stipules are subentire or only very obscurely and shallowly appressed crenulate. The flowers remind one of wild forms of V. tricolor L., but the upper leaves are long-attenuate (not cordate) at the base. A very low-growing state of this taxon is represented by Moldenke & Moldenke 26322 from Pea Island, Dare County, North Carolina, where the plants are only 6--7 cm. tall when in full anthesis and where, again, there were hundreds of thousands of absolutely uniform plants forming deep-blue carpets on grassy road shoulders for a distance of several miles. There is, however, evidence that the shoulders had been mowed recently so the low stature of the violets may possibly be attributed to that factor, although they seemed to grow no taller around obstacles and in depressions probably not reached by the mowing machines.

VIOLA RAFINESQUII f. MINOR Moldenke, f. nov.

Haec forma a forma typica speciei statura plerumque 4--7 cm. alta recedit.

This form differs from the typical form of the species in being mostly only 4--7 cm. tall during anthesis. The corollas have a slight bluish tinge at the base outside, but seen en masse appear to be completely white.

The type of the form was collected by Alma L. and Harold N. Moldenke (no. 26340) in wet sandy ditches near Bertie, Bertie County, North Carolina, on March 20, 1973, and is deposited in the Lundell Herbarium at the University of Texas. This form was extremely common locally in tremendous colonies of tens of thousands of individuals along a stretch of several miles of roadside, producing solid carpets of white.

ADDITIONAL NOTES ON THE ERIOCAULACEAE. XLVI

Harold N. Moldenke

PAEPALANTHUS CILIOLATUS Ruhl..

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 6, 127, 147, & 289, fig. 1 E. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Serr. Min. 40, pl. 4. 1908; Alv. Silv., Fl. Mont. 1: 72--73, 106--107, 401, & 404, pl. 29. 1928; Stapf, Ind. Lond. 4: 518. 1930; A. W. Hill, Ind. Kew. Suppl. 8: 169. 1933; Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Worsdell, Ind. Lond. Suppl. 2: 182. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10, 11, 44, & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac.,

[ed. 2], 81, 83, & 208. 1949; Moldenke, Résumé 95, 96, 324, 485, & 486. 1959; Moldenke, Résumé Suppl. 1: 6, 19, & 25 (1959) and 12: 4 & 11. 1965; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 148 & 190. 1969; Moldenke, Phytologia 20: 108. 1970; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 577, 579, & 949. 1971..

Illustrations: Ruhl. in Engl., Pflanzenreich 13 (4-30): 6, fig. 1 E. 1903; Alv. Silv., Fl. Serr. Min. pl. 4. 1908; Alv. Silv., Fl. Mont. 1: pl. 29. 1928.

The type of this species is Glaziou 15527, collected at Cachoeira de Caraça, Minas Gerais, Brazil, and deposited in the herbarium of the Botanisches Museum at Berlin where it was photographed by Macbride as his type photograph number 10585. Ruhland cites only this one collection and comments "Indumentum foliorum insigne. Flores ♂ numero praeter ♀ excellent." Silveira (1928) cites A. Silveira 564 from "Inter saxa quartzitosa secus margines rivuli Quebra-Ossos, Serra do Caraça, Minas Gerais, Brazil, collected in April of 1909 and deposited in the Silveira herbarium. He notes that "Ex specimenibus in Serra do Caraça a me collectis, ad hanc speciem evidenter pertinentibus, diagnosis a cl. Ruhland data ita est supplenda et alteranda: Folia apice interdum solum ciliata (nec barbulata), cillii foliorum nec semper in tota margine conspicui, nonnumquam in foliis ipsis juvenilibus brevissimi et sub lente vix notati, citissimo decidui; pedunculi superne pilis longis praediti; petala floris masculi extus hirsuta; illa floris feminei basi connata (nec libera ut in descriptione Ruhlandiana), demum rigescentia, luteo-castanea apice revoluta fuscioraque atque explanata; stylus nec semper brevissimus et interdum brevis (germen longitudine diminutum aequans). Semina ovoidea, acuta, luteo-fusca, primum seriebus pseudo-pilorum longitudinaliter instructa, dein laevia."

Silveira (1928) cites for his P. albo-ciliatus the following collections: "In pratis naturalibus in Serra de Ouro Branco, Minas Geraes: Alvaro da Silveira, Feb. 1905, inter saxa quartzitos, in Serra do Batatal, prope Capanema, Minas: Alv. da Silveira, Apr. 1906 in Serra de Ouro Fino, prope Capanema: dr. Benedicto Quintino, sept. 1927; n. 269 in herb. Silveira." Of these it is most probable that the first-mentioned is the type collection. It is worth noting here that there is only one plate 29 in Silveira's work, even though it is labeled "TABULA XXIX II Paepalanthus albociliatus Alv. Silv."

The species has been found growing in wet sandy savannas, natural meadows, and among quartzite rocks, at altitudes of 10--15 meters, flowering in February, April, June, September, and December. The printed label accompanying Glaziou 15527 is inscribed "Rio de Janeiro" in at least some herbaria. Material has been misidentified and distributed in some herbaria as Leiostrix flavescens (Bong.) Ruhl.

Citations: BRAZIL: Bahia: M. A. Chase 8009 (W--1282172). Minas Gerais: Damazio 704 (B); Glaziou 15527 [Macbride photos 10585] (B--type, Br--isotype, N--isotype, N--photo of type, N--photo of isotype, W--photo of type); A. Silveira 269 (B).

PAEPALANTHUS CIPOENSIS Alv. Silv., Fl. Mont. 1: 218--220, pl. 145. 1928.

Synonymy: Paepalanthus cipoënsis Alv. Silv. apud A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938.

Bibliography: Alv. Silv., Fl. Mont. 1: 218--220 & 404, pl. 145. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 145. 1928.

This species is based on A. Silveira 554 from sandy fields in the Serra do Cipó, Minas Gerais, Brazil, collected in 1909, and deposited in the Silveira herbarium. Silveira (1928) notes "Ab affine P. bahiensi statura validiora, vaginis laxiusculis et bracteae involucrentibus apice non rotundatis praecipue differt."

Citations: BRAZIL: Minas Gerais: Black, Magalhães, & Graflinger 51-12216 (Be--70043).

PAEPALANTHUS CLAUSSENIANUS Körn. in Mart., Fl. Bras. 3 (1): 323--324, pl. 43. 1863.

Synonymy: Eriocaulon polyanthum Mart., Flora 24, Beibl. 2: 35. 1841 [not E. polyanthum Bong., 1841]. Dupatya clausseianiana (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya clausseianiana Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Paepalanthus clausseianus Körn. apud Alv. Silv., Fl. Mont. 1: 404. 1928. Actinocephalus clausseianus Mart. ex Moldenke, Fifth Summ. 1: 377, in syn. 1971. Paepalanthus calausseianus Körn. ex Moldenke, Phytologia 23: 434, in syn. 1972.

Bibliography: Mart., Flora 24, Beibl. 2: 35. 1841; Körn. in Mart., Fl. Bras. 3 (1): 323--324, 499, & 507, pl. 43. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 879 (1893) and 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 5--7, 10, 189, 191--192, [283], 287, & 289. 1903; A. W. Hill, Ind. Kew. Suppl. 8: 2. 1908; Alv. Silv., Fl. Mont. 1: 404. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 42 & 43. 1930; Stapf, Ind. Lond. 4: 518. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, 38, & 46. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 879 (1946) and 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Phytologia 4: 138. 1952; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 96, 279, 291, 324, & 486. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 879 (1960) and 2: 401. 1960; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 149, 159--161, 174, & 187--190. 1969; Moldenke, Fifth Summ. 1: 160, 377, & 479 (1971) and 2: 509, 580, & 949. 1971; Moldenke, Phytologia 23: 434. 1972.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 43. 1863.

This species is based on P. Clausen 70 & 158 and Martius 879, all from Minas Gerais, Brazil, the first-mentioned being from Cachoeira do Campo and the others without definite stated locality, all deposited in the herbarium of the Botanische Staatssammlung at Munich, where Martius 879 was photographed by Macbride as his type photograph number 18698. This Martius collection appears also to be the type of Eriocaulon polyanthum Mart., a homonym of E. polyanthum Bong., which is the name-bringing synonym of Paepalanthus polyanthus (Bong.) Kunth.

Ruhland (1903) cites P. Clausen 70 & 158, Martius 879, Prince von Sachs. Coburg-Gotha II. 498, and Warming s.n., all from Minas Gerais. Silveira (1928) cites J. Costa Sena 481 from Cachoeira do Campo, collected in 1907.

The species has been collected in wet sandy places, wet places near brooks, on steep rocky slopes, and on sterile hills, in grassy barrancas, and on campos especially on hills, at altitudes of 550 to 1750 meters, flowering and fruiting in every month of the year. Warming describes it as very abundant. Irwin and his associates describe it as a perennial herb or subshrub, with the stem simple or few-branched, erect, 0.7—2 m. tall, and the flowering-heads white, gray, or gray-white, growing in cerrado, wet campos, among rocks in an area of cerrado and fields on limestone slopes, on steep rocky lower mountain slopes with plants mostly restricted to soil-filled crevices, or on campos in areas of wet "campo sujo" and surrounding cerrado. Irwin & Soderstrom refer to it as "occasional"; Hatschbach encountered it on rocky campos.

Clausen 44 in the Paris herbarium bears the notation "Kunth no. 70". Material has been misidentified and distributed in some herbaria under the names Eriocaulon polyanthes Mart., E. polyanthum Bong., Paepalanthus hilairi Körn., P. polyanthus Kunth, and P. speciosus var. glaber Ruhl. The P. Clausen s.n., cited below, is a mixture with a species of Xyris.

Black & Mendes Magalhães 51-11884 & 51-12075 are from the Serra do Cipó and have their stem-leaves long-attenuate and widely divergent — I doubt if they really represent P. clausenianus. The Ackermann s.n. [1832] collection cited below was first identified by herbarium workers as Eriocaulon ramosum Wikstr., then corrected to E. maximiliani Bong., then to P. hilairi var. ♂ Körn., and finally to P. clausenianus! The initial letter of the specific epithet is often upper-cased.

Citations: BRAZIL: Distrito Federal: Heringer 6781 (B); Irwin & Soderstrom 5126 (Ac, N), 5759 (Id, N, N), 5760 (Ac, N, N); Irwin, Souza, & Reis dos Santos 8025 (Ac, N); Maguire, Murça Pires, Maguire, & Silva 57009 (Id, N); Murça Pires, Silva, & Souza 9377 (Lw, Ut). Goiás: Irwin, Maxwell, & Wasshausen 21568 (Ac, N); Macedo 3688 (N); Onishi, Barroso, & Maia 95 (Id); Sick B.647 [Herb. Brade. 4466] (Bd); Weddell 2134 (Br, N). Maranhão: Murça

Pires & Black 1610a (N, N), 2261 (N). Minas Gerais: Archer & Mello Barreto 5016 (N); Black & Mendes Magalhães 51-11884 (Be--69709), 51-12075 (Be--69899); Brade 13606 [Herb. Jard. Bot. Rio Jan. 25391] (B); P. Clausen 14 (P), 15 (P), 70 (Br-cotype), 158 (B--cotype, Br--cotype), s.n. [Aug.--April 1840] (Br, Br, N), s.n. [1840] (M1, S), s.n. (B, B, B, B, Br, P); Glaziou 19976 (C); Hatschbach 27011 (Ft), 29900 (Ld); Heringer & Castellanos 5962 (B), 6145 (Z); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27584 (Ld, N); Irwin, Harley, & Onishi 28977 (Ld); Irwin, Maxwell, & Wasshausen 19645 (Ac, Ld, N); Luschnath 41 (Br); A. Lutz 1074 (Ja); Martius 879 [Macbride photos 18698] (B--cotype, Br--cotype, M--cotype, N--photo of cotype, W--photo of cotype); Pereira 3165 [Pabst 4000; Herb. Brad. 4376] (Bd). State undetermined: Ackermann s.n. [1832] (B); Herb. Jard. Bot. Brux. s.n. (Br). MOUNTED ILLUSTRATIONS: Mart., Fl. Bras. 3 (1): pl. 43 (B, B); photograph in situ (G); drawings & notes by Körnicke (B).

PAEPALANTHUS COLOIDES Ruhl. in Engl., Pflanzenreich 13 (4-30): 178. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 3, 173, 178, 179, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Mont. 1: 164 & 404. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 41. 1930; Moldenke, Known Geogr. Distrib. Ericoc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Alph. List Cit. 3: 731 (1949) and 4: 1297. 1949; Moldenke, Phytologia 4: 138. 1952; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 949. 1971.

This species is based on Glaziou 19995, collected at Diamantina, in the Serra dos Cristaes, Minas Gerais, Brazil, deposited in the herbarium of the Botanisches Museum at Berlin where it was photographed by Macbride as his type photograph number 10586. Ruhland (1903) cites only this original collection and comments "Habitus tabulatiformis ('stockwerkähnlich') speciei valde insignis est, ut etiam in praecedente [P. argyrolinon Körn.]." Mrs. Mexia describes the plant as an herb, with white flowers, "common in colonies in disintegrated rock in crevices of cliffs" at 1260 meters altitude. It has been collected in anthesis in April and May. A vernacular name for it is "perpetua do campo". One of the Mexia 5733 specimens cited previously as being in the Britton Herbarium at the New York Botanical Garden is now in the herbarium of the Instituto Miguel Lillo in Tucumán, Argentina. Ruhland (1903) in the index to his monograph avers that the species is mentioned on page "118" of his work, but this appears to be a misprint for page 178. Silveira (1928) cites Herb. Silveira 469 from Diamantina, collected in 1895 (but the actual collector undesignated). Material has been misidentified and distributed in some herbaria as Syngonanthus caulescens var. procerus (Kl.) Standl.

Additional citations: BRAZIL: Minas Gerais: Glaziou 19995 [Mac-

bride photos 10586] (B--type, Br--isotype, C--isotype, N--isotype, N--photo of type, N--photo of type, W--1112516--isotype, W--photo of type); Mexia 5733 (Ba, Go, Mi, Ml, Qu, S, Ut--50245a, W--1571897).

PAEPALANTHUS COLUMBIENSIS Ruhl. in Engl., Pflanzenreich 13 (4-30): 207. 1903.

Synonymy: Paepalanthus columbianus Ruhl. ex Moldenke, Phytologia 4: 138, in syn. 1952.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 201, 207, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 5, 46, & 60. 1946; Moldenke, Alph. List Cit. 1: 95 & 133--135 (1946), 2: 580, 609, & 642 (1948), 3: 758 & 924 (1949), and 4: 1040, 1076--1079, 1215, & 1296. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 60, 64, & 208. 1949; Moldenke, Phytologia 4: 138--139. 1952; Moldenke, Résumé 67, 72, 419, & 486. 1959; Moldenke, Résumé Suppl. 12: 11. 1965; Moldenke, Fifth Summ. 1: 118, 125, & 280 (1971) and 2: 778 & 949. 1971.

The type of this species was collected by Friedrich Carl Lehmann (no. 3578) in marshy places near Palatirá, at 2900--3000 meters altitude, Cauca, Colombia, in February of 1884, and is deposited in the herbarium of the Botanisches Museum at Berlin. The collector notes that "Blätter hellgrün, in einer kugelförmigen Masse geordnet; Blütenköpfchen weiss". Ruhland cites the collector as "C. F. Lehmann" in error, cites only the original collection, and comments that "Species P. alpino Koern. affinis, sed foliis, vaginis, pedunculis ab illo satis diversa".

Recent collectors describe the plant as having the peduncles somewhat flattened and with purplish-gray or white flower-heads, and have found it growing at altitudes of 2600 to 3500 meters, flowering in February, May, August, October, and November. They record the common names "pifuelita de páramo" and "pipalanthus". Schultes and his associates describe it as being common with Espeletia grandiflora and E. corymbosa in the Acaulirosuletum zone, forming cushion-like clumps on small gently sloping páramos with brushy ravines.

The Jahn 975, distributed as P. columbiensis Ruhl., is actually P. schlimii Körn.

Additional citations: COLOMBIA: Boyacá: Cuatrecasas 10328 (Er, F--1289730), 10396 (F--1297528). Cauca: F. C. Lehmann 3578 (B--type), LXII (W--936268); F. W. Pennell 6910 (N, W--1143727). Cundinamarca: E. L. Core 16 (N); Cuatrecasas & Jaramillo 11969 (N); Fosberg & Schultes 19217 (N, N); García-Barriga 11650 (W--1857993); García-Barriga, Schultes, & Jaramillo 13595 (W--2058285); Killip 34047 (S); Köie 5101 (Cp); Schiefer 664 (W--1858064, W--1906855); R. E. Schultes 4058 (N, W--1995809), 11547 (Z). Norte de Santander: Schultes, Smith, & Cuatrecasas 12308 (N). Santander: Cuatrecasas & García-Barriga 9878 (N). State

undetermined: Linden 102 (Br). VENEZUELA: Lara: Jahn 1307b (Ve). Mérida: Badillo 944 (Ve—18303); Bernardi 6066 (N). Trujillo: Jahn 1178 (W—1186770).

PAEPALANTHUS COMANS Alv. Silv., Fl. Mont. 1: 262--263, pl. 174. 1928.

Synonymy: Paepalanthus standleyi Moldenke, Phytologia 2: 471—473. 1948. Paepalanthus standleyi Moldenke ex Rennó, Levant. Herb. Inst. Agron. 71, sphalm. 1960.

Bibliography: Alv. Silv., Fl. Mont. 1: 262--263 & 404, pl. 174. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Phytologia 2: 471--473. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83, 88, 208, & 211. 1949; E. J. Salisb., Ind. Kew. Suppl. 11: 176. 1953; Moldenke, Phytologia 4: 205. 1953; Moldenke, Résumé 96, 328, & 486. 1959; Rennó, Levant. Herb. Inst. Agron. 71. 1960; Moldenke, Résumé Suppl. 3: 34. 1962; Moldenke, Phytologia 20: 358 & 362. 1970; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 591 & 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 174. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 508) in sandy rocky fields near Diamantina, Minas Gerais, Brazil, in April of 1908, and is deposited in the Silveira herbarium. Interestingly, on page 404 of this work, Silveira (1928) gives "1918" as the date of collection of his type number — whether this is a misprint or is intended as a correction of the date given on page 263 is not clear. He comments that the species is "Ab affinibus P. mirabile Alv. Silv. et P. Paulino Ruhl. differt: ab illo praecipue pilis bractearum perigoniorumque acutis; ab hoc pedunculis multo majoribus, tubo petalorum florum femineorum intus piloso et aliis characteribus."

The type of P. standleyi is Mello Barreto 9688, collected on a sandy campo on the road from Bia Vista to Extracção, in the municipality of Diamantina, on November 9, 1937, and deposited in the Britton Herbarium at the New York Botanical Garden.

The species has been collected at altitudes of 1240 to 1400 m., flowering from December to February and in April and May, fruiting in December. Irwin and his associates describe it as caespitose, the leaves fleshy, the inflorescences to 50 cm. tall, and the flowering-heads light-gray or white, growing on wet high campo slopes with outcrops and at creek margins, as well as in meadows in areas of grassy meadows and adjacent sandy campos. Mrs. Mexia refers to it as a common herb growing among grasses "in seepages among rocks" and describes the flowers as white. Silva describes it as a caespitose herb, 50 cm. tall, with white flower-heads, and found it to be very frequent on wet sandy campos. Irwin, Reis dos Santos, Souza, & Fonsêca 22020 was originally a mixture of this species and P. argyropus Alv. Silv., but the portion that is P. comans has been renumbered 22020a.

Material of P. comans has been misidentified and distributed in some herbaria under the name P. warmingii Körn. On the other hand, the Mello Barreto 2539, distributed as P. comans, is actually P. complanatus Alv. Silv.

Citations: BRAZIL: Minas Gerais: Irwin, Maxwell, & Wasshausen 20265 (N, N); Irwin, Reis dos Santos, Souza, & Fonsêca 22020a (Ac, Ld); A. Lutz 1546 [Herb. Lutz 1547] (Ja); Mello Barreto 2539 [Herb. Jard. Bot. Belo Horiz. 8292] (N), 9688 [Herb. Jard. Bot. Belo Horiz. 24113] (N); Mexia 5881 (Ba, F—767670, N, S, Ut—50244a, W—1571895); Pereira 2773 [Pabst 3609; Herb. Brad. 3832] (Ba); J. B. Silva 561 [Herb. Set. Lag. 698] (Ba).

PAEPALANTHUS COMOSUS Alv. Silv., Fl. Mont. 1: 129—130, pl. 80. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 128—130 & 404, pl. 80. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Rennó, Levant. Herb. Inst. Agron. 70. 1960; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 80. 1928.

This species is based on Silveira 674 from "Sub rupibus in Gruta do Fiscal, prope Diamantina, Minas Geraes", Brazil, collected in April of 1918 and deposited in the Silveira herbarium. On page 404 of his work, Silveira (1928) says that the type collection was made at "Chapada do Coute", but whether this is information supplementary to that given in the original description or is intended as a correction of it, is not clear. He notes that the "Species ob pedunculos numerosos et longos certe distinctissima".

Anderson and his associates state that this plant forms clumps in sandy soil, and found it at 1550 m. altitude in an area of sandstone outcrops with shrubby vegetation, adjacent grassy slopes, and a valley with a small stream, mostly in sandy soil but with an overlying black humus in many places. They found it in flower in February.

Citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35885 (Z); Mendes Magalhães 2129 [Herb. Jard. Bot. Belo Horiz. 42648] (N).

PAEPALANTHUS COMPACTUS G. Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 527. 1843.

Synonymy: Eriocaulon compactum Gardn. ex Steud., Syn. Pl. Glum. 2: [Cyp.] 274—275 & 333. 1855. Dupatya compacta (Gardn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Eriocaulon compactum Steud. apud Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878. 1893. Paepalanthus compactus Gardn. ex Jacks. in Hook. f. & Jacks., Ind.

Kew., pr. 1, 2: 401, sphalm. 1894. Dupatya compacta Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: G. Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 527. 1843; Walp., Ann. Bot. Syst. 1: 889. 1849; Steud., Syn. Pl. Glum. 2: [Cyp.] 274—275 & 333. 1855; Körn. in Mart., Fl. Bras. 3 (1): 299, 321—322, & 507. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878 (1893) and 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 6, 189—191, 285, & 289, fig. 1 D. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 483. 1906; Alv. Silv., Fl. Mont. 1: 401. 1928; Stapf, Ind. Lond. 4: 518. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145 & 483. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, 33, & 46. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878 (1946) and 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Phytologia 4: 139. 1952; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145 & 483. 1959; Moldenke, Résumé 96, 279, 287, & 486. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878 (1960) and 2: 401. 1960; Moldenke, Résumé Suppl. 18: 13. 1969; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 148, 159—161, 173—175, 184, & 186—191. 1969; Moldenke, Phytologia 20: 425. 1970; Moldenke, Fifth Summ. 1: 160 & 479 (1971) and 2: 497, 579, & 949. 1971.

Illustrations: G. Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 527. 1843; Ruhl. in Engl., Pflanzenreich 13 (4-30): 6, fig. 1 D. 1903.

The type of this species was collected by George Gardner (no. 5247) on elevated sandy campos in mountain tracts beyond the Diamond district, Minas Gerais, Brazil, in July of 1840, deposited in the Kew herbarium. An isotype in the Berlin herbarium was photographed there by Macbride as his type photograph number 10587. Ruhland (1903) cites only this original collection. Gardner (1843) notes that "This species of Paepalanthus belongs to the division umbellati of Bongard; and is allied to P. Bahiensis of Kunth." Silveira (1928) cites A. Silveira 636 from Diamantina, collected in 1916. The species has been collected in anthesis in July. The M. A. Chase 10418, distributed as P. compactus, is P. brachypus (Bong.) Kunth, a very similar species.

Additional citations: BRAZIL: Minas Gerais: G. Gardner 5247 [Macbride photos 10587] (B—isotype, N—photo of isotype, N—photo of isotype, W—photo of isotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS COMPLANATUS Alv. Silv., Fl. Mont. 1: 244—246, pl. 163. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 244—246 & 404, pl. 163. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83

& 208. 1949; Moldenke, Résumé 96 & 486, 1959; Moldenke, Phytologia 20: 366. 1970; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 163. 1928.

The type of this species was collected by Dr. Joaquim Gomes Michaeli in sandy fields in the Serra da Pedra Redonda, near Roças Novas, Minas Gerais, Brazil, in June of 1918 and is no. 369 in the Silveira herbarium. On page 404 of his work, however, Silveira (1928) cites an additional A. Silveira 368 from the Serra do Cipó, Minas Gerais, collected in 1905. He says of the species "A P. superbo Ruhl. et P. xiphophyllo Ruhl. affinis differt: ab illo foliis ciliatis, magnitudine capitulorum bractearumque involucrentium interiorum; ab eo foliis ciliatis subtusque glabris, et bracteis involucrentibus atro-fuscis."

Recent collectors have found the plant growing in quartz and sand soil, at altitudes of 1120 to 1200 meters, flowering in January, February, April, October, and November. Irwin and his associates describe it as a tufted herb, the inflorescence to 15 cm. tall, the flower-heads gray, growing on sandy slopes of sandy campos with outcrops. The species is apparently closely related to P. ater Alv. Silv., P. barbiger Alv. Silv., P. bombacinus Alv. Silv., and P. comans Alv. Silv. Material has been misidentified and distributed in some herbaria under the names P. ater Alv. Silv., P. barbiger Alv. Silv., and P. standleyi Moldenke.

Citations: BRAZIL: Minas Gerais: Black & Mendes Magalhães 51-11758 (Be—69586); Heringer 6088a (N); Heringer & Castellanos 6030 (B), 6100 (B), 6104 (Z), 6147 (B); Irwin, Maxwell, & Wasshausen 20077 (Ld, N, N); Macedo 2952 (N); Mello Barreto 2539 (N); Mendes Magalhães 2558 [Herb. Jard. Bot. Belo Horiz. 43861] (N), 2559 [Herb. Jard. Bot. Belo Horiz. 43862] (N); Murça Pires & Black 2960 (Be—63514); Segadas-Vianna 6008 (N); Segadas-Vianna & Lorêdo Serra II.1097 (N); L. B. Smith 6838 (Z), 6842 (W—2124669); Tryon & Tryon 6824 (Ac).

PAEPALANTHUS CONDUPLICATUS Körn. in Mart., Fl. Bras. 3 (1): 414. 1863.

Synonymy: Dupatya conduplicata (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya conduplicata Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 278, 414, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 2, 201, 213, [283], & 289. 1903; Alv. Silv., Fl. Mont. 1: 241 & 404. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, & 46. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Alph. List Cit. 4: 1203. 1949; Durand & Jacks., Ind. Kew. Suppl. 1,

pr. 3, 145. 1959; Moldenke, *Résumé* 96, 279, & 486. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 3, 2: 401. 1960; Moldenke, *Fifth Summ.* 1: 160 & 479 (1971) and 2: 949. 1971.

This species is based on Sellow 1322 from near Caraça, Minas Gerais, Brazil, flowering in December, and deposited in the Berlin herbarium, where it was photographed by Macbride as his type photograph number 10588. Ruhland (1903) cites, in addition, P. Clausen 267 in the Brussels herbarium and P. Clausen s.n. from "in Morästen bei Cachoeira do Campo", deposited as sheet number 151316 in the Reichenbach herbarium at Vienna, both also from Minas Gerais. He comments that "Species valde insignis". Silveira (1928) cites A. Silveira 431 from the Serra do Caraça, Minas Gerais, collected in 1906.

Material has been misidentified and distributed in some herbaria as P. planifolius var. conduplicatus Ruhl. On the other hand, the Mexia 5745, distributed as P. conduplicatus, is actually P. planifolius (Bong.) Körn.

Citations: BRAZIL: Minas Gerais: P. Clausen 267 (Br, N); Sellow 1322 [Macbride photos 10588] (B—type, N—photo of type, N—photo of type, W—photo of type).

PAEPALANTHUS CONDUPLICATUS var. PUBESCENS Alv. Silv., *Fl. Mont.* 1: 241. 1928.

Bibliography: Alv. Silv., *Fl. Mont.* 1: 241 & 404. 1928; Moldenke, *Known Geogr. Distrib. Erioc.* 11 & 46. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 83 & 208. 1949; Moldenke, *Résumé* 96 & 486. 1959; Moldenke, *Fifth Summ.* 1: 160 (1971) and 2: 949. 1971.

This variety is based on A. Silveira 550, collected in wet places in the Serra do Cipó, Minas Gerais, Brazil, in April of 1909 and deposited in the Silveira herbarium. On page 404 of his work, Silveira (1928) gives the year of collection as "1905". He describes the variety as "Folia utrinque persistenter patenti pubescentia.....Varietas pilositate foliorum insignis."

PAEPALANTHUS CONICUS Alv. Silv., *Fl. Mont.* 1: 136—137, pl. 85. 1928.

Bibliography: Alv. Silv., *Fl. Mont.* 1: 136—137 & 404, pl. 85. 1928; Wangerin in *Just, Bot. Jahresber.* 57 (1): 476. 1937; A. W. Hill, *Ind. Kew. Suppl.* 9: 199. 1938; Worsdell, *Ind. Lond. Suppl.* 2: 183. 1941; Moldenke, *Known Geogr. Distrib. Erioc.* 11 & 46. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 83 & 208. 1949; Moldenke, *Résumé* 96 & 486. 1959; Moldenke, *Fifth Summ.* 1: 160 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., *Fl. Mont.* 1: pl. 85. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 759) in sandy fields near Milho Verde, in the Serra Geral, Minas Gerais, Brazil, in June, 1925, and is deposited in the Silveira herbarium. Thus far, the species is known only from the original collection.

PAEPALANTHUS CONVEXUS Gleason, Bull. Torrey Bot. Club 58: 328--329. 1931.

Bibliography: H. A. Gleason, Bull. Torrey Bot. Club 58: 328--329. 1931; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Fedde & Schust. in Just, Bot. Jahresber. 59 (2): 19. 1939; Moldenke, Known Geogr. Distrib. Erioc. 6 & 47. 1946; Moldenke, Alph. List Cit. 2: 352 (1948) and 3: 975. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 64 & 208. 1949; Moldenke, Phytologia 4: 139. 1952; Moldenke in J. A. Steyermark, Fieldiana Bot. 28: 825. 1957; Moldenke, Résumé 72 & 486. 1959; J. A. Steyermark, Act. Bot. Venez. 1 (3/4): 222. 1966; Hocking, Excerpt. Bot. A.13: 506. 1968; Moldenke, Résumé Suppl. 16: 6. 1968; Moldenke, Fifth Summ. 1: 125 (1971) and 2: 949 & 968. 1971; Moldenke, Phytologia 25: 94. 1972.

Recent collectors have found this plant growing in crevices in the shade of ledges, in depressions at the base of small weathered sandstone outcrops above a swamp savanna, and by ponds, at altitudes of 1510 to 2740 meters, flowering in April, May, October, and December, and describe the plants having stems elongated, leaves subcoriaceous, deep- or rich-green on both surfaces or else dull-green or gray above (at least the young ones), paler green or dull-green beneath, with white margins and long white hairs, gray pubescence on the leaf-sheaths, the flowering heads whitish or gray-white, and the involucre pale-gray. Steyermark refers to the plant as "abundant".

Fedde & Schuster (1939) cite the original publication of this binomial as page "329", but the description actually begins on page 328.

Additional citations: VENEZUELA: Amazonas: Cardona Puig 3083 (Ve); Dunsterville & Dunsterville s.n. [5 Dic. 1972] (Ve); Ewal 146 (Z); J. A. Steyermark 103948 (N); G. H. H. Tate 470 (N). Bolívar: Cordona 2420 (Ve); Pannier & Schwabe s.n. [Auyantepui] (Ve); J. A. Steyermark 93683 (Lw, N, N, S), 93958 (Lw, N); Vareschi & Foldats 4898 (N, Ve--40485). BRAZIL: Amazonas: J. A. Steyermark 103892 (N).

PAEPALANTHUS CONVEXUS var. MAJOR Moldenke, Phytologia 15: 463. 1968.

Bibliography: Moldenke, Phytologia 15: 463. 1968; Moldenke, Résumé Suppl. 16: 6. 1968; Hocking, Excerpt. Bot. A.13: 506. 1968; Moldenke, Biol. Abstr. 49: 3245. 1968; Moldenke, Fifth Summ. 1: 125 & 160 (1971) and 2: 949. 1971.

Steyermark describes this plant as having its leaves gray-green, with white hairs, and the flowering-heads dull-white. He found it growing in a semi-level savanna-like area with bushes, at 1900 m. altitude, flowering in October.

Citations: VENEZUELA: Amazonas: J. A. Steyermark 103955 (N). BRAZIL: Amazonas: Silva & Brazão 60926 (N--type).

PAEPALANTHUS CORDATUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 189. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 189 &

289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

This species is based on Glaziou 22324 from dry campos at Chapadão de Porto Seguro, Goiás, Brazil, flowering in December, and deposited in the herbarium of the Botanisches Museum at Berlin, where it was photographed by Macbride as his type photograph number 10589. Ruhland (1903) cites only this original collection and no other collection has been made since, as far as I know. He comments that "Species familiae e maximis. Flores non vidi, sed non dubito, quin species ad Diphyomenen pertineat. Ibi P. acanthophyllo habitu robusto, insigni proxima."

Citations: BRAZIL: Goiás: Glaziou 22324 [Macbride photos 10589] (B—type, Br—isotype, N—photo of type, N—isotype, N—photo of type, W—photo of type).

PAEPALANTHUS CORONARIUS Alv. Silv., Fl. Mont. 1: 63—65, pl. 36. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 63—65 & 405, pl. 36. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 97 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 36. 1928.

This species is based on A. Silveira 758, collected in dry places in sandy fields near Baraunas, in the Serra Geral, Minas Gerais, Brazil, in June of 1925 and is deposited in the Silveira herbarium. Silveira (1928) observes that "Species ob dispositionem florum in capitulo et eorum magnitudinem distincta. A P. Regeliano Koern. bracteis dorso pilosis et indumento farinaceo differt."

Citations: BRAZIL: Minas Gerais: Castellanos & Santos s.n. [A. Castellanos 24128; Herb. Brad. 28329] (N, Z).

PAEPALANTHUS CORONARIUS var. CILIATUS Alv. Silv., Fl. Mont. 1: 65 ["ciliata"]. 1928.

Synonymy: Paepalanthus coronarius var. ciliata Alv. Silv., Fl. Mont. 1: 65 & 405. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 65 & 405. 1928; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 97, 324, & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 580 & 950. 1971.

The type of this variety was collected by Álvaro Adolpho da Silveira (no. 506) in dry fields near Currallinho, in the Serra Geral, Minas Gerais, Brazil, in June of 1925 and is deposited in the Silveira herbarium. Silveira (1928) describes the plant as

"Folia ciliata, utrinque pilis brevissimis farinaceo-pubescentia, 12--25 cm longa, circiter 1 cm medio lata". On page 405 of his work, he gives the type locality as "Currálinho (Diamantina)" and the date of collection as "1908". Thus far, the taxon is known only from the original collection.

PAEPALANTHUS CORYMBOIDES Ruhl. in Engl., Pflanzenreich 13 (4-30): 204--205. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 201, 204--205, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 97 & 486. 1959; Angely, Fl. Anal. Paran., ed. 1, 200. 1965; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

The type of this species was collected by Ernst Heinrich Georg Ule (no. 2725) in the Serra da Caraça, Minas Gerais, Brazil, in March of 1892 and is deposited in the herbarium of the Botanisches Museum at Berlin. The species has been collected in flower in March and Ruhland (1903) says of it "Species Paepalantho paucifloro Koern. valde affinis ab eo praesertim foliis latioribus differt. Forsan melius subspecies illius constituenda." He cites only the original collection and this is the only collection known to date.

Citations: BRAZIL: Minas Gerais: Ule 2725 (B--type).

PAEPALANTHUS CORYMBOIDES var. EPILOSUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 205. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 205 & 289. 1903; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Phytologia 4: 139. 1952; Angely, Fl. Paran. 10: 14. 1957; Moldenke, Résumé 97 & 486. 1959; Angely, Fl. Paran. 16: 66 (1960) and 17: 24. 1961; Angely, Fl. Anal. Paran., ed. 1, 200. 1965; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

This variety is based on Sena s.n. [Herb. Schwacke 14514], collected on high campos at Lavras Novas, Minas Gerais, Brazil, flowering in May, and deposited in the Berlin herbarium where it was photographed by Macbride as his type photograph number 10590. Ruhland (1903) describes it as "Differt a typo foliis ab initio glaberrimis" and cites no other material.

Additional citations: BRAZIL: Minas Gerais: Sena s.n. [Herb. Schwacke 14514; Macbride photos 10590] (B--type, N--photo of type, N--photo of type, W--photo of type). Paraná: Hatschbach 2911 (N); F. C. Hoehne s.n. [3-11-28] (Sp--23360).

PAEPALANTHUS CORYMBOSUS (Bong.) Kunth, Enum. Pl. 3: 509. 1841.

Synonymy: Eriocaulon corymbosum Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 629. 1831. Paepalanthus corymbosus Kunth apud Körn. in Mart., Fl. Bras. 3 (1): 399. 1863. Dupatya corymbosa (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya corymbosa Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145.

1902. Paepalanthus corymbosus Knuth, in herb.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 629. 1831; Bong., Ess. Monog. Erioc. 29 (1831) and 2: 70-71, pl. 18. 1832; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 2: 233-234, pl. 18. 1832; Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): 15. 1835; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 509, 510, 575, 576, 613, & 624. 1841; D. Dietr., Syn. Pl. 5: 260. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 278 & 333. 1855; Körn. in Mart., Fl. Bras. 3 (1): 399 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878 (1893) and 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 201, 204, [283], 285, & 289. 1903; Alv. Silv., Fl. Mont. 1: 405. 1928; Stapf, Ind. Lond. 3: 90. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, 33, & 47. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878 (1946) and 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 97, 279, 287, 324, & 486. 1959; Moldenke, Résumé Suppl. 1: 20. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878 (1960) and 2: 401. 1960; Moldenke, Fifth Summ. 1: 160 & 479 (1971) and 2: 497, 580, & 950. 1971; Moldenke, Phytologia 25: 157. 1973.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 2: pl. 18. 1832; Bong., Ess. Monog. Erioc. pl. 18. 1832.

The type of this species was collected by Ludwig Riedel (no. 286) in sandy stony places in the Serra de São José, Minas Gerais, Brazil, flowering in June, and deposited in the Leningrad herbarium. An isotype in the Berlin herbarium was photographed there by Macbride as his type photograph number 10591. Bongard's original (1831) description is "acaule; foliis caespitosis, lineari-lanceolato-acuminatis, ciliatis; pedunculis glabris; vaginis basi lanatis integris. Tab. XVIII. Habitat in arenosis Serra de St. Joze. Floret Junio." Ruhland (1903) cites only the original collection, but Silveira (1928) cites "Ubi ? n. 627", perhaps meaning Herb. Silveira 627 but with collector, date, and locality of collection unknown.

Kunth (1841) avers that this species and P. melaleucus (Bong.) Kunth are very closely related, differing as follows: "P. corymboso valde affinis, a quo optime distinguendus praesentia caulibus 1-2-pollicaris; foliis acutioribus, pilis longis parvis inferne ciliatis, qui in P. corymboso breviores, densiores, totum folium marginem occupant; pedunculis angustioribus et apice pluries divisus." The species is certainly also very similar to P. bromelioides Alv. Silv., P. lanceolatus Körn., and P. vellozioides Körn.

The Martius reference (1835) is often cited as "1833", the date of submission of the manuscript, but the late Dr. J. H. Barnhart has told me "I can find no evidence that this paper was published until 1835".

Citations: BRAZIL: Minas Gerais: L. Riedel 286 [Macbride photos 10591] (B--isotype, N--photo of isotype, N--photo of isotype, Ut--353--isotype, W--photo of isotype, Z--isotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS COSTARICENSIS Moldenke, N. Am. Fl. 19: 38. 1937.

Bibliography: Moldenke, N. Am. Fl. 19: 38. 1937; P. C. Standl., Field Mus. Publ. Bot. 18: 147. 1937; Moldenke, Phytologia 1: 332, 350, & 362. 1939; Moldenke, Known Geogr. Distrib. Erioc. 4 & 47. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 158. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 39 & 208. 1949; Moldenke, Résumé 47 & 486. 1959; Straka, Erdkunde 14: 61. 1960; Faden, Idrobo, Jiminez, & Tomlinson, Common Distrib. Int. Pl. Cerro Muerte 2. 1966; Moldenke, Résumé Suppl. 15: 3. 1967; Moldenke, Fifth Summ. 1: 88 (1971) and 950. 1971.

The type of this species was collected in Sphagnum bogs at Laguna de la Chonta, northeast of Santa Maria de Dota, at 2000 to 2100 meters altitude, San José, Costa Rica, by Paul Carpenter Standley (no. 42326) on December 18, 1925, and is deposited in the herbarium of the Field Museum of Natural History at Chicago.

Recent collectors have found this plant in cold wet bogs at altitudes of 2000 to 3000 meters, flowering in July, August, and December. Anderson & Mori encountered it in low boggy depressions with some standing water and clay-loam to silt soil, in a Sphagnum-Lomaria association with Vaccinium, Xyris, Puya, Carex, Nertera, and Geranium mexicanum.

Additional & emended citations: COSTA RICA: Cartago: Anderson & Mori 230 (Ws); A. R. Moldenke 1332 (Z); Williams, Molina R., Williams, & Gibson 28293 (N). San José: P. C. Standley 42326 (F-599363--type); Tomlinson 2 VIII 65 A (Ft--275, Ft),

PAEPALANTHUS COUTOENSIS Moldenke, Known Geogr. Distrib. Erioc. 11, 45, & 47, hyponym (Feb. 9, 1946); Phytologia 2: 140. July 8, 1946.

Synonymy: Paepalanthus barbulatus Alv. Silv., Fl. Mont. 1: 211-212 & 402, pl. 139 & 140. 1928 [not P. barbulatus Herzog, 1924].

Bibliography: Herzog in Fedde, Repert. Spec. Nov. 20: 83. 1924; Alv. Silv., Fl. Mont. 1: 211-212 & 402, pl. 139 & 140. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 45, & 47. 1946; Moldenke, Phytologia 2: 140. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Phytologia 4: 139. 1952; E. J. Salisb., Ind. Kew. Suppl. 11: 175. 1953; Moldenke, Résumé 97, 323, & 486. 1959; Moldenke, Phytologia 20: 364 & 367. 1970; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 578 & 950. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 139 & 140. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 683) in sandy fields in the Chapada do Couto, Minas Gerais, Brazil, in April of 1918 and is deposited in the Silveira

herbarium. It should be noted that the second illustration is cited by Silveira (1928) in his text as plate "CLX", but the plate itself is labeled "CXL" and it occupies that position in the numerical sequence of plates. Paepalanthus barbulatus Herzog is a valid species.

Mrs. Chase found P. coutoënsis growing in wet sandy savannas. Material has been misidentified and distributed in some herbaria as P. bahiensis (Bong.) Kunth.

Additional citations: BRAZIL: Bahia: Belém & Magalhães 803 (Ac); M. A. Chase 8011 (W—1282174). Guanabara: Segadas-Vianna 3824 (Ja, Z).

PAEPALANTHUS CRASSICAULIS Körn. in Mart., Fl. Bras. 3 (1): 408—409. 1863.

Synonymy: Dupatya crassicaulis (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya crassicaulis Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 408—409 & 508. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 201, 208, [283], & 289. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 5, 7, 29, & 47. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401. 1946; Moldenke, Alph. List Cit. 1: 132—134 (1946), 2: 352 & 610 (1948), 3: 758, 808, 885, & 974 (1949), and 4: 1074, 1076, 1165, & 1291. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 60, 64, 73, & 209. 1949; Moldenke, Mutisia 6: 2. 1952; Moldenke, Phytologia 4: 139—140. 1952; Uribe, Mutisia 25: 28. 1956; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 67, 72, 80, 84, 279, & 486. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 401. 1960; Moldenke, Fifth Summ. 1: 118, 125, 136, 142, & 479 (1971) and 2: 950. 1971.

Ruhland (1903) cites only the type collection. Recent collectors have found the plant growing on open hillsides, páramos, rocky or brushy slopes, open brushy rocky ridges, and in seepages, at altitudes of 1300 to 3700 meters, flowering from February to August and October to December, the flowers being described as white. Hutchison & Wright describe it as having "stemless rosettes. Leaves acuminate with sparsely hirsute margins". Their no. 5541 is said to be deposited also in the herbaria of the University of California, United States National Museum, Field Museum, Missouri Botanical Garden, and the Museo Historia Natural in Lima, Peru, but I have not as yet seen these specimens.

Fosberg describes P. crassicaulis as "common in open places in the subpáramo brush on gentle slopes, the rosettes bluish-green"; he and Villareal refer to it as "common on open slopes of páramo with brushy ravines, sandstone ledges, and scattered great limestone boulders"; Wurdack refers to it as "locally abundant" and as "occasional in the Jalca zone". Steyermark describes the

leaves as "subcoriaceous, grass-green on both sides". Stork & Horton describe the plant as a "perennial herb; heavy taproot; in clay soil among grass in sunny grassy areas, the cushioned rosettes of leaves clinging close to the ground" and distributed their material as "Paepalanthus sp. aff. itatiaiensis Ruhl. et flaviceps Körn." Sagástegui reports the Peruvian vernacular name "achupallo" for it.

Material has been misidentified and distributed in some herbaria as P. ensifolius (H.B.K.) Kunth and P. petraeus Körn., both strikingly similar species.

Additional citations: COLOMBIA: Boyacá: Fassett 25032 [U. S. Nat. Arb. 217369] (N, W—2166136, Ws); H. L. Mason 13732 (W—2047829). Cundinamarca: Ariste-Joseph s.n. [Region of Bogotá] (W—1040130); F. A. Barkley 38882 (Ld); Barkley, Garcia-Barriga, & Vanegas 170808 (W—1985455); Black 46-403 (N, W—1995750); Cuatrecasas 5010 (W—1774395); Ewan 16906 (S); F. R. Fosberg 21353 (N); Fosberg & Villareal 20606 (N); Galen Smith 1025 (W—2047401); Herb. Nac. Colomb. 58 (W—1470657); Holton 123 (C); Philipson, Idrobo, & Fernandez 2437 (Bm); Rusby & Pennell 1280 (W—1041678); R. E. Schultes 7030 (Ca), 7114 (N), 7252 (N, W—1996045). Department undetermined: Schlim 1252 (Br). VENEZUELA: Trujillo: J. A. Steyermark 105022 (Ft). ECUADOR: Loja: Fosberg & Giler 23099 (N). PERU: Amazonas: Edwin & Schunke V.3689 (N); Hutchison & Wright 5541 (N, Z); Sagástegui 5999 (W—2471627); Soukup 5044 (Ld); Wurdack 580 (W—2403670), 1000 (N, W—2403674), 1460 (S, W—2403689). Cajamarca: Sagástegui s.n. [Mayo 1969] (N); Stork & Horton 10122 (Ca—639308).

PAEPALANTHUS CRATERIFORMIS Alv. Silv., Fl. Mont. 1: 60—61, pl. 34. 1928.

Synonymy: Paepalantus crateriformis Alv. Silv., Fl. Mont. 1: 60, sphalm. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 60—61 & 405, pl. 34. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Résumé 97 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 34. 1928.

This species is based on A. Silveira 588 from fields near Retiro da Tapera, in the Serra do Cabral, Minas Gerais, Brazil, collected in May of 1910 and deposited in the Silveira herbarium. Silveira (1928) says of the plant "Species ob capitula extacte crateriformia distinctissima". Curiously, he fails to cite his illustration in the text.

Irwin and his associates describe the plant as a "rosette herb, the inflorescence to 20 cm. tall, heads light gray, common in campo in area of sandy campo with low gallery woods bordering

creek", at 1000 meters altitude, flowering in March.

Citations: BRAZIL: Goiás: Irwin, Reis dos Santos, Souza, & Fonseca 24408 (N, Z).

PAEPALANTHUS CRISTATUS Moldenke in Gleason & Killip, Brittonia 3: 157--158. 1939.

Bibliography: Moldenke in Gleason & Killip, Brittonia 3: 157--158. 1939; Moldenke, Known Geogr. Distrib. Erioc. 6, 11, & 47. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 158. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 64, 83, & 209. 1949; Moldenke, Alph. List Cit. 4: 985. 1949; Moldenke, Résumé 72 & 486. 1959; Moldenke, Fifth Summ. 1: 125 (1971) and 2: 950. 1971.

This species is based on G. H. H. Tate 1330. It was previously reported from Brazil, but it appears now that the species is known thus far only from Bolívar, Venezuela, at 2000 to 2200 m. altitude.

Citations: VENEZUELA: Bolívar: Foldats 2639 (N); Pannier & Schwabe s.n. [Auyantepui] (Ve); J. A. Steyermark 93183 (N, Z); G. H. H. Tate 1330 (N--type).

PAEPALANTHUS CRYOCEPHALUS Alv. Silv., Fl. Mont. 1: 116--117, pl. 72. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 116--117 & 405, pl. 72. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Résumé 97 & 486. 1959; Rennó, Levant. Herb. Inst. Agron. 70. 1960; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 72. 1928.

This species is based on A. Silveira 830 from shady places and among rocks in fields near Itacambira, Minas Gerais, Brazil, collected in July of 1926 and deposited in the Silveira herbarium.

Hatschbach has found the plant in "solo arenoso junto a rochas, local sombrio", at 1800 meters altitude, flowering in August. Anderson and his associates encountered it in dry sand under a rock overhang, at 1700 meters altitude, in an area of sandstone and adjacent meadows with both sandy soil and overlying humus, flowering in February.

Citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35827 (Ld); Hatschbach 30113 (Z).

PAEPALANTHUS CUMBRICOLA Moldenke in Maguire & Wurdack, Mem. N. Y. Bot. Gard. 9: 409. 1957.

Bibliography: Moldenke in Maguire & Wurdack, Mem. N. Y. Bot. Gard. 9: 409. 1957; Moldenke, Résumé 72 & 486. 1959; G. Taylor, Ind. Kew. Suppl. 13: 98. 1966.

Wurdack states that this plant is locally abundant in large colonies on escarpment faces, but found "only one plant with flowers" and "in bud and old fruit, but mostly sterile", at alti-

tudes of 2250 to 2350 meters, the buds white in January and February.

Citations: VENEZUELA: Bolívar: Wurdack 34238 (N), 34308 (N-type).

PAEPALANTHUS CURURENSIS Moldenke, Phytologia 3: 40—41. 1948.

Bibliography: Moldenke, Phytologia 3: 40—41 (1948) and 3: 142. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Phytologia 4: 140. 1952; E. J. Salisb., Ind. Kew. Suppl. 11: 175. 1953; Moldenke, Résumé 97 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

Additional citations: BRAZIL: Amazonas: Sioli s.n. [24.5.1942] (Be—29162). Pará: Egler & Raimundo s.n. [W. A. Egler 964; Herb. Brad. 12289; Herb. Mus. Goeldi 23625] (Lw, Z).

PAEPALANTHUS CUSPIDATUS Alv. Silv., Fl. Mont. 1: 49—50, pl. 26. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 49—50 & 405, pl. 26. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Phytologia 4: 140. 1952; Moldenke, Résumé 97 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 26. 1928.

This species is based on A. Silveira 558 from fields with quartzite rocks near Curraes, in the Serra do Cipó, Minas Gerais, Brazil, collected in April of 1909 and deposited in the Silveira herbarium. Silveira (1928) says of this plant "Ab affinibus statura validiore et bracteis involucrentibus facile distinguitur".

PAEPALANTHUS CYLINDRACEUS Alv. Silv., Fl. Mont. 1: 130—131, pl. 81. 1928.

Synonymy: Paepalanthus cylindracens Alv. Silv., Fl. Mont. 1: pl. 81, sphalm. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 130—131 & 405, pl. 81. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Résumé 97 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 580 & 950. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 81. 1928.

This species is based on A. Silveira 748 from sandy places in the Serra do Chapadão near the Serra da Canastra, Minas Gerais, Brazil, collected in April of 1925 and deposited in the Silveira herbarium. Thus far it is known only from the original collection. Although recent collectors have brought back material of many of Silveira's taxa, it appears that much more botanical exploration and collection in Minas Gerais is needed.

PAEPALANTHUS DAMAZIOI Beauverd, Bull. Herb. Boiss., sér. 2, 8: [291]—293, fig. 11 C 1—7. 1908 [not *P. damazioi* Ruhl., 1959].

Synonymy: *Paepalanthus damazoi* Beauverd ex Moldenke, Résumé Suppl. 12: 11, sphalm. 1964. *Paepalanthus damazioiu* Beauv. Ruhl. ex Moldenke, Résumé Suppl. 12: 11, in syn. 1964.

Bibliography: Beauverd, Bull. Herb. Boiss., sér. 2, 8: [291]—293, fig. 11 C 1—7. 1908; Prain, Ind. Kew. Suppl. 4, pr. 1, 170. 1913; Stapf, Ind. Lond. 4: 518. 1930; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moacyr do Amaral Lisboa, Revist. Esc. Minas 3. 1951; Moacyr do Amaral Lisboa, Cent. Nascim. Leon. Bot. Damaz. [2]. 1954; Prain, Ind. Kew. Suppl. 4, pr. 2, 170. 1958; Moldenke, Résumé 97 & 486. 1959; Moldenke, Résumé Suppl. 12: 11. 1964; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 580 & 950. 1971.

Illustrations: Beauverd, Bull. Herb. Boiss., sér. 2, 8: [291], fig. 11 C 1—7. 1908.

According to Beauverd (1908), this species is based on "No. 1844. — Serra do Frasco, près Araial de Antonio Pereira, sur les rochers: leg. Damazio, 21 mars 1907", deposited in the Barbey-Boissier Herbarium at the Conservatoire Botanique in Geneva. He says "Espèce très élégante, bien distincte de toutes les autres formes du groupe des *Rosulati*; pourrait se placer, dans la monographie de Ruhland, entre les *P. viridulus* et *P. cephalopus* Silveira et Ruhl. sans d'ailleurs offrir d'autre transition entre ces deux sous-groupes que celles présentées par ses feuilles membranacées qui la rapprochent du sous-groupe A, et sa tige très courte, comme chez le sous-groupe B de Ruhland."

The *P. damazioi* credited to Ruhland and apparently a name which he originally intended to use, belongs in the synonymy of *P. undulatus* Ruhl., the name he finally decided on. Beauverd's species seems to be known only from the original collection.

PAEPALANTHUS DASYNEMA Ruhl. in Engl., Pflanzenreich 13 (4-30): 178—179. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 3, 9, 11, 173, 178—179, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Mont. 1: 162 & 405. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 40—42 & 44. 1930; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Résumé 97 & 486. 1959; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 166, 174, & 190. 1969; Moldenke, Phytologia 20: 304. 1970; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

This species is based on *Glaziou 19997* from between rocks in the Serra da Mangabeira, Minas Gerais, Brazil, flowering in April, deposited in the Berlin herbarium where it was photographed by Macbride as his type photograph number 10593. Ruhland (1903) says of this plant "Species insignis, gracillima, cuius membra vegetativa pedunculis densissime filiformibus quasi occulta sunt." In

the index to his work there is a reference to page "118", but this is apparently a typographic error (perhaps for 178).

Silveira (1928) cites A. Silveira 493 from Camillinho between Diamantina and Curvello, collected in 1908.

Citations: BRAZIL: Minas Gerais: Glaziou 19997 [Macbride photos 10593] (B--type, Br--isotype, N--isotype, N--photo of type, N--photo of type, W--photo of type).

PAEPALANTHUS DECORUS Abbiatti, Notas Mus. La Plata Bot. 13: [307]-311, fig. 1 & 2, pl. 1. 1948.

Bibliography: Abbiatti, Notas Mus. La Plata Bot. 13: [307]-311, fig. 1 & 2, pl. 1. 1948; E. J. Salisb., Ind. Kew. Suppl. 11: 175. 1953; Anon., U. S. Dept. Agr. Bot. Subj. Index 5: 4227. 1958; Moldenke, Résumé 97 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

Illustrations: Abbiatti, Notas Mus. La Plata Bot. 13: 308 & 309, fig. 1 & 2, pl. 1. 1948.

The type collection of this species is cited by Abbiatti (1948) as follows: "Brasil: Uruguayana, leg. C. Spegazzini, 1-3-1909 (Typus speciei in Herb. Spegazzini No 16389, Museo de La Plata)." She also says "Conocida hasta ahora, solamente por su material típico procedente de Uruguayana (Brasil, Estado de Rio Grande do Sul). Es muy probable que la especie exista en la Argentina, dado que la localidad mencionada está separada tan solo de la provincia de Corrientes por el río Uruguay....Ubico a la especie en el subgénero Paepalocephalus Ruhl., sec. Diphyomene Ruhl., del género Paepalanthus Mart., según la monografía de Ruhl. sobre la familia 'Eriocaulaceae'.....Es cercana P. flaccidus (Bong.) Kunth.....distinguiéndose de esta especie, por sus tallos cortamente alargados, suberguidos, por sus pedúnculos mucho más largos, por sus brácteas involucrales que sobrepasan al disco, y entre sus caracteres florales, se aparta, particularmente, por sus flores ♀ pediceladas.....No tengo conocimiento de que esta planta sea explotada, pero por sus bellos capítulos sostenidos por largos pedúnculos, podría tener aplicación en el comercio como siemprevivas, como ocurre con Syngonanthus elegans (Bong.) Ruhl."

PAEPALANTHUS DECUSSUS Körn. in Mart., Fl. Bras. 3 (1): 318. 1863.

Synonymy: Dupatya decussa (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya decussa Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 318 & 506. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 184, 186-187, [283], & 289. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, & 47. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Durand & Jacks., Ind. Kew.

Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 97, 279, & 486. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 401. 1960; Moldenke, Fifth Summ. 1: 160 & 479 (1971) and 2: 950. 1971.

This species is based on P. Clausen s.n. from Cachoeira, Minas Gerais, Brazil, deposited in the Munich herbarium. It is very probable that the P. Clausen 146, cited below, is part of the same collection, but this is not certain.

Citations: BRAZIL: Minas Gerais: P. Clausen 146 (V-151821), s.n. [Cachoeira] (B--isotype, Br--isotype, N--isotype, N--photo of isotype, Z--photo of isotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS DENNISII Moldenke, Résumé Suppl. 1: 5, nom. nud. (Nov. 14, 1959); Phytologia 7: 88--89. Dec. 14, 1959.

Synonymy: Paepalanthus dennisii Moldenke apud G. Taylor, Ind. Kew. Suppl. 13: 98. 1966.

Bibliography: Moldenke, Résumé Suppl. 1: 5. 1959; Moldenke, Phytologia 7: 88--89 (1959) and 7: 120. 1960; Moldenke, Biol. Abstr. 35: 1688. 1960; Moldenke, Résumé Suppl. 2: 15. 1960; Hocking, Excerpt. Bot. A.4: 592. 1962; G. Taylor, Ind. Kew. Suppl. 13: 98. 1966; Moldenke, Fifth Summ. 1: 125 (1971) and 2: 580 & 950. 1971.

It has always been my policy, in proposing new specific epithets, to write them in the manner easiest to pronounce. Anyone working much with the general public, as I have, knows that to persuade the public to use scientific names at all, or even to convince the public of the necessity for such scientific names, the names should be as simple and as easy to pronounce as it is feasible to make them. For this reason, placing a single "i" as the termination of a possessive adjectival adaptation of a proper name like Faxon, Maxon, Gardner, or Dennis, for example, is much to be preferred because the accent in pronouncing the proper name is in each case on the first syllable and remains on the first syllable when the name becomes a Latinized possessive adjective. Using a double "i" in such cases shifts the accent to the second syllable and often so changes the sound of the word as to render it unintelligible to the public. After all, Art. 73, Rec. 73 C (b), is only a recommendation in the International Code, not a definite rule! It is most unfortunate that Taylor arbitrarily changed the spelling of the name I proposed and this without even noting in parentheses that this was not the way I published it in the reference he cites! Why bother to designate certain statements in the Code as only "recommendations" if they are to be taken as hard-and-fast rules, leaving individual authors no choice. I am continuing to regard as correct the spelling of the name as it was originally proposed. Another example of this deplorable policy of changing the single "i" termination to a double "i" is seen in Clerodendrum buchananii, a form which is almost impossible to pronounce without evoking laughter.

Citations: VENEZUELA: Mérida: R. W. G. Dennis s.n. [26.VIII. 1958] (K--type, Z--isotype).

PAEPALANTHUS DENSIFOLIUS Alv. Silv., Arch. Jard. Bot. Rio Jan. 2: [7], pl. 1. 1918.

Synonymy: Paepalanthus desinfolius Alv. Silv., Fl. Mont. 1: pl. 59, sphalm. 1928.

Bibliography: Alv. Silv., Arch. Jard. Bot. Rio Jan. 2: [7], pl. 1. 1918; Correa, Dicc. Pl. Uteis Bras. 1: 655. 1926; Alv. Silv., Fl. Mont. 1: 93—94 & 405, pl. 58 & 59. 1928; A. W. Hill, Ind. Kew. Suppl. 7: 174. 1929; Stapf, Ind. Lond. 4: 518. 1930; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Phytologia 2: 380. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Phytologia 4: 140. 1952; Anon., U. S. Dept. Agr. Bot. Subj. Index 5: 4227. 1958; Moldenke, Résumé 97, 324, & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 580 & 950. 1971.

Illustrations: Alv. Silv., Arch. Jard. Bot. Rio Jan. 2: pl. 1. 1918; Correa, Dicc. Pl. Uteis Bras. 1: 655. 1926; Alv. Silv., Fl. Mont. 1: pl. 58 & 59. 1928.

PAEPALANTHUS DENUDATUS Körn. in Mart., Fl. Bras. 3 (1): 328. 1863.

Synonymy: Dupatya demudata (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya demudata Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 328 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 189, 194, [283], & 289. 1903; Alv. Silv., Fl. Mont. 1: 405. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, & 47. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Résumé 97, 279, & 486. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 401. 1960; Moldenke, Fifth Summ. 1: 160 & 479 (1971) and 2: 950. 1971; Moldenke, Phytologia 25: 162. 1973.

This species is based on G. Gardner 5252, collected in Minas Gerais, Brazil, and deposited in the herbarium of the Botanisches Museum at Berlin, where it was photographed by Macbride as his type photograph number 10595. Silveira (1928) cites A. Silveira 825 from Serrinha, Grão Mogol, Minas Gerais, collected in 1926. Ruhland (1903) cites only the type collection and truly notes that "Species antecedenti [P. rigidus (Bong.) Kunth] valde affinis". In his key he separates these taxa as follows:

"Rami simplices, apice pedunculiferi.....P. rigidus, P. demudatus

Rami ramulosi, ramuli pedunculiferi.....P. divaricatus"

All three of these taxa seem to me to be very closely related, also, to P. cabralensis Alv. Silv. and P. nudus Alv. Silv.

Recent collectors have found P. demudatus growing in sand and gravel and among rocks in wet places in areas of cerrado with out-

crops bordering gallery forests, at altitudes of 1265 to 1350 meters, flowering in September, December, and January. Irwin and his associates describe the plant as an erect subshrub to 75 cm. tall, with white flower-heads. Material has been misidentified and distributed in some herbaria as P. falcifolius Körn. and P. rigidus (Bong.) Kunth. On the other hand, the Gomes 2718 [Macbride photos 10612], distributed as P. denudatus, is actually P. falcifolius Körn.

Citations: BRAZIL: Minas Gerais: Archer 4111 (Be--39320, N, W--1705640); M. A. Chase 10429 (W--1495697); P. Clausen 19 (P); G. Gardner 5252 [Macbride photos 10595] (B--type, N--photo of type, N--photo of type, S--isotype, W--photo of type, Z--isotype); Irwin, Reis dos Santos, Souza, & Fonsêca 22488 (N, Z); Maguire, Maguire, & Murça Pires 44749 (N). State undetermined: G. Gardner 5248 (N). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS DESPERADO Ruhl. in Engl., Pflanzenreich 13 (4-30): 138--139. 1903.

Synonymy: Paepalanthus desperado Ruhl. ex Moldenke, Résumé Suppl. 3: 34, in syn. 1962.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 125, 138--139, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Résumé 97 & 486. 1959; Rennó, Levant. Herb. Inst. Agron. 70. 1960; Moldenke, Résumé Suppl. 3: 34. 1962; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 580 & 950. 1971.

This species is based on W. Schwacke 12046, collected on clay campos in the Serra de Lavras Novas, Minas Gerais, Brazil, flowering in December, and deposited in the Berlin herbarium where it was photographed by Macbride as his type photograph number 10596. Ruhland (1903) cites only the original collection and notes that the "Species foliis et vaginis insignis optime ad P. suffruticantem Ruhl. spectat."

Irwin and his associates describe the plant as a rosette herb, the "dried inflorescences to 50 cm. tall", and found it growing in cerrado at 1000 m. altitude. The only specimens of their collection, however, seen by me were actually in bud (not in the dry fruiting condition implied by their description) and were collected in that condition in March. The Mello Barreto 5301 [Herb. Jard. Bot. Belo Horiz. 17587], distributed as P. desperado, is actually P. nigricaulis Alv. Silv.

Citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27519 (N, Z); Schwacke 12046 [Macbride photos 10596] (B--type, N--photo of type, N--photo of type, W--photo of type).

PAEPALANTHUS DIAMANTINENSIS Moldenke, Phytologia 3: 314--315. 1950.

Bibliography: Moldenke, Phytologia 3: 314--315. 1950; E. J.

Salisbury, Ind. Kew. Suppl. 11: 175. 1953; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 276—277 & 303. 1956; Moldenke, Résumé 97 & 486. 1959; Rennó, Levant. Herb. Inst. Agron. 70. 1960; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

Interestingly, Mendes Magalhães (1956) refers to this species as "n. sp." Thus far it is known only from the type collection.

Citations: BRAZIL: Minas Gerais: Mello Barreto 9920 [Herb. Jard. Bot. Belo Horiz. 25757] (N--type).

PAEPALANTHUS DIANTHOIDES Mart. ex Körn. in Mart., Fl. Bras. 3 (1): 339--340. 1863.

Synonymy: Paepalanthus dianthoides var. α Körn. in Mart., Fl. Bras. 3 (1): 339--340. 1863. Dupatya dianthodes (Mart.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya dianthodes Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Dupatya dianthoides Kuntze apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 220, in syn. 1903.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 278, 283, 339--340, & 507. 1863; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): [21]. 1888; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 12, 214, 220, [283], & 289. 1903; Alv. Silv., Fl. Mont. 1: 405. 1928; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 41. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, & 47. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 97, 279, & 486. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 401. 1960; Moldenke, Résumé Suppl. 18: 9. 1969; Moldenke, Fifth Summ. 1: 160, 479, & 480 (1971) and 2: 580 & 950. 1971.

This species is based on Ackermann s.n., collected somewhere in Minas Gerais, Brazil, in 1832, and deposited in the herbarium of the Botanisches Museum at Berlin. Macbride photographed Glaziou 15521 in the Delessert Herbarium at Geneva, but this collection is not a type collection of any sort. The labels accompanying this Glaziou collection, by the way, are inscribed "Rio de Janeiro", but Ruhland (1903) affirms that the collection was actually made in Minas Gerais. He cites Ackermann s.n., Glaziou 15521, Langsdorff s.n., and Mendonça 567, all from Minas Gerais — the Langsdorff collection is the type of Körnicke's var. β , now known as var. langsdorffii Moldenke. He comments that the "Species cum praecedente [P. plumosus (Bong.) Körn.] valde affinis, sed foliis angustioribus, eorumque indumento formaque bractearum involuocrantium facile dignoscenda." Silveira (1928) cites A. Silveira 429 from the Serra do Caraça, also in Minas Gerais, collected in 1906 and deposited in the Silveira herbarium.

Material of this species has been misidentified and distributed in some herbaria under the name Eriocaulon pilosum Humb.

Citations: BRAZIL: Minas Gerais: Ackermann s.n. [1832] (B--type, Br--isotype, N--isotype); P. Clausen s.n. (Br); Glaziou 15521 [Macbride photos 25171] (Br, N, N--photo, W--photo).

PAEPALANTHUS DIANTHOIDES var. LANGSDORFFI Moldenke, Fifth Summ.

1: 160 (1971) and 2: 580 & 950, hyponym (1971), nom. nov.

Synonymy: Paepalanthus dianthoides var. ♂ Körn. in Mart., Fl. Bras. 3 (1): 339--340. 1863.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 339--340. 1863; Ruhl. in Engl., Pflanzenreich 13 (4-30): 220. 1903; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 580 & 950. 1971.

This variety differs from the typical form of the species in having its peduncles pilose-lanate below and short-puberulent above.

The type of the variety was collected by Georg Heinrich von Langsdorff -- in whose honor it is named -- somewhere in Minas Gerais, Brazil, and is deposited in the herbarium of the Botanische Staatssammlung at Munich. Thus far the variety is known only from the original collection, which Ruhland (1903) united with typical P. dianthoides Mart.

PAEPALANTHUS DICHOTOMUS Klotzsch in M. R. Schomb., Reisen [Vers.

Fauna & Fl.] Brit.-Guian. 3: 1064, nom. nud. (1848); Körn. in Mart., Fl. Bras. 3 (1): 348. 1863.

Synonymy: Dupatya dichotoma (Klotzsch) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya dichotoma Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Klotzsch in M. R. Schomb., Reisen [Vers. Fauna & Fl.] Brit.-Guian. 3: 1064. 1848; Körn. in Mart., Fl. Bras. 3 (1): 277, 348, & 507. 1863; Benth. & Hook. f., Gen. Pl. 3 (2): 1023. 1833; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 5, 9, 180, 181, & 289. 1903; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 42. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Phytologia 3: 142. 1942; Moldenke, Known Geogr. Distrib. Erioc. 6, 29, & 47. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 64, 66, 83, & 209. 1949; Moldenke, Alph. List Cit. 3: 905 & 975 (1949) and 4: 1015. 1949; Moldenke, Phytologia 4: 140. 1952; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 72, 75, 97, 279, & 486. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 401. 1960; Moldenke, Résumé Suppl. 7: 5. 1963; Hocking, Excerpt. Bot. A.7: 455. 1964; Soukup, Biota 5: 194. 1964; Moldenke, Biol. Abstr. 45: 2772. 1964; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 190. 1969; Moldenke, Phytologia 20: 297. 1970; Moldenke, Fifth Summ. 1: 125, 130, 160, & 480 (1971) and 2: 950. 1971; Moldenke, Phytologia 23: 181 & 418. 1972; Anon., Biol. Ab-

str. 54 (3): B.A.S.I.C. S.184. 1972; Moldenke, Biol. Abstr. 54: 1189. 1972.

This species is based on M. R. Schomburgk 899, collected in sandy places on the savanna in the vicinity of Rué-imeru Falls, Guyana, flowering in September and October and deposited in the Berlin herbarium where it was photographed by Macbride as his type photograph number 10597. Ruhland (1903) cites only the original collection and notes "Dubium mihi est, utrum species duae legitimae sunt. Pedunculi etiam in P. dichotomo haud raro omnino absunt. Haud scio an non rectius species varietas foliorum indumento diversa praecedentis [P. guyanensis Klotzsch] sit."

In his key he distinguishes these two taxa as follows:

"Folia albido-villosa, appressa; pedunculi vaginaeque subnulla
P. guyanensis

Folia praesertim basin versus lanuginoso-ciliata, supra marginem apicem versus pubescentia, ceterum glabra, arrecta vel paulo recurvata; pedunculi breves.....P. dichotomus"

Gleason, in his unpublished Flora of British Guiana, describes P. dichotomus as follows: "Stems 5--10 cm. long, woody, leafy on the upper 1--2 cm.; leaves recurved or spreading, narrowly linear, about 1 cm. long, obtuse, glabrous except at base; peduncles 1 or 2 from near the summit of each branch, 1--3 cm. long, nearly glabrous and terete; heads hemispheric, 3--5 mm. wide; bracts oblong, obtuse or subacute, appressed, imbricate in several series. Cako Creek, Appun 1009; without definite locality, Schomburgk 676, 899 B (Endemic)."

Additional citations: VENEZUELA: Bolívar: J. A. Steyermark 59209 (S). GUYANA: M. R. Schomburgk 676 (B), 899 [Macbride photos 10597] (B--type, N--photo of type, N--photo of type, W--photo of type). BRAZIL: Amazonas: Ule 8556, in part [Herb. Mus. Goeldi 13618] (K, Z). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS DICHOTOMUS var. BRASILIENSIS Moldenke, Phytologia 23: 181. 1972.

Bibliography: Moldenke, Phytologia 23: 181 & 418. 1972; Moldenke, Biol. Abstr. 54: 1189. 1972; Anon., Biol. Abstr. 54 (3): B.A. S.I.C. S.184. 1972.

Citations: BRAZIL: Minas Gerais: Hatschbach 27425 (Z--type).

PAEPALANTHUS DICHOTOMUS var. GLABRESCENS Moldenke, Phytologia 9: 187. 1963.

Bibliography: Moldenke, Phytologia 9: 187. 1963; Moldenke, Résumé Suppl. 7: 5. 1963; Hocking, Excerpt. Bot. A.7: 455. 1964; Soukup, Biota 5: 194. 1964; Moldenke, Biol. Abstr. 45: 2772. 1964; Moldenke, Fifth Summ. 1: 142 (1971) and 2: 950. 1971.

Citations: PERU: Amazonas: Wurdack 1388 (N--isotype, S--isotype, W--2403687--type, Z--isotype).

PAEPALANTHUS DICHROMOLEPIS Alv. Silv., Fl. Serr. Min. 42, pl. 15. 1908.

Bibliography: Alv. Silv., Fl. Serr. Min. 42, pl. 15. 1908; Alv. Silv., Fl. Mont. 1: 25, 39, 58--60, & 405, pl. 33. 1928; Stapf, Ind. Lond. 4: 518. 1930; A. W. Hill, Ind. Kew. Suppl. 8: 169. 1933; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Résumé 97 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971; Moldenke, Phytologia 26: 199. 1973.

Illustrations: Alv. Silv., Fl. Serr. Min. pl. 15. 1908; Alv. Silv., Fl. Mont. 1: pl. 33. 1928.

This species is based on A. Silveira 351 from sandy places near Lapinha, in the Serra do Cipó, Minas Gerais, Brazil, collected in April of 1905 and deposited in the Silveira herbarium. Silveira (1928) comments that "Specimina suppettentia omnia qua legi excicacione foetidum odorem exhalabant. A. P. eriphaeo Ruhl. cum quo vaginis congruit, bractearum involucrentium dignoscitur".

Irwin and his associates describe the plants as rosette herbs "with light-gray heads" and found the species growing in cerrado, flowering and fruiting in November. They make no mention of any fetid odor.

The Glaziou 19964, distributed as P. dichromolepis in some herbaria, is actually P. argenteus (Bong.) Körn.

Citations: BRAZIL: Goiás: Irwin, Souza, & Reis dos Santos 9776 (N, Z). Minas Gerais: Glaziou 11164 (N); A. Silveira 351 (B--isotype, Z--isotype).

PAEPALANTHUS DIFFISSUS Moldenke, Résumé Suppl. 4: 5, nom. nud. (June 5, 1962); Phytologia 8: 392. Dec. 10, 1962.

Synonymy: Paepalanthus diffusus Moldenke apud Hocking, Excerpt. Bot. A.6: 455, sphalm. 1963 [not P. diffusus Alv. Silv., 1928].

Bibliography: Moldenke, Résumé Suppl. 4: 5. 1962; Moldenke, Phytologia 8: 392. 1962; Hocking, Excerpt. Bot. A.6: 455. 1963; Moldenke, Biol. Abstr. 42: 1517. 1963; Moldenke, Résumé Suppl. 12: 11. 1965; G. Taylor, Ind. Kew. Suppl. 14: 97. 1970; Moldenke, Fifth Summ. 1: 125 (1971) and 2: 581 & 950. 1971.

Steyermark & Rabe found this species growing in open grassy areas resembling subpáramo, at altitudes of 2700 to 2900 meters.

Citations: VENEZUELA: Táchira: Steyermark & Rabe 96953 (Ld); Vareschi 5357 (Ve--type, Z--isotype).

PAEPALANTHUS DIFFUSUS Alv. Silv., Fl. Mont. 1: 208--209, pl. 137. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 208--210 & 405, pl. 137. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83

& 209. 1949; Moldenke, Résumé 97 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 950. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 137. 1928.

This species is based on A. Silveira 633, collected in capoeira at the margins of small streams in the Serra do Cipó, Minas Gerais, Brazil, in April of 1915 and is deposited in the Silveira herbarium. On page 405 of his work (1928) Silveira gives the year of collection of the type as "1905", but if this is a misprint or is intended as a correction of the date given in his original description is not clear. He comments that the "Species propter caulem diffusum certe distincta". The specific epithet's initial letter is sometimes uppercased, for no valid reason. The P. diffusus accredited to Moldenke is merely a misspelling of P. diffissus Moldenke and belongs in its synonymy. Thus far, Silveira's species is known only from the original collection.

PAEPALANTHUS DIPLOBETOR Ruhl. in Engl., Pflanzenreich 13 (4-30): 134-135. 1903.

Synonymy: Paepalanthus diplobetor Ruhl. ex Alv. Silv., Fl. Mont. 1: 405, sphalm. 1928. Paepalanthus diplobator Ruhl. ex Moldenke, Known Geogr. Distrib. Erioc. 11, sphalm. 1946. Paepalanthus neglectus var. ulei Ruhl. ex Moldenke, Résumé Suppl. 1: 21, in syn. 1959.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 124, 134-135, & 289. 1903; Ruhl. in Urb., Engl. Bot. Jahrb. 37: 520. 1906; Beauverd, Bull. Herb. Boiss., sér. 2, 8: 287-289, fig. 10 B 11-17. 1908; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Mont. 1: 405. 1928; Stapf, Ind. Lond. 4: 518. 1930; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Résumé 97, 324, & 486. 1959; Moldenke, Résumé Suppl. 1: 21. 1959; Rennó, Levant. Herb. Inst. Agron. 70. 1960; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 581, 586, & 950. 1971; Moldenke, Phytologia 25: 165 (1973) and 26: 145. 1973.

Illustrations: Beauverd, Bull. Herb. Boiss., sér. 2, 8: 289, fig. 10 B 11-17. 1908.

This species is based on Glaziou 15539 from Campo de São Sebastião near Ouro Preto, M. Gomes 2725 & 3038 from damp shady places among boulders at Morro de São Sebastião, A. Silveira s.n. & 1538 [cited as "(Alv.)"] from Morro de São Sebastião, Serra de Ouro Preto, and Ule 2720 from the same locality, all in Minas Gerais, Brazil, and all deposited in the Berlin herbarium, where the Glaziou collection [whose printed labels are inscribed "Rio de Janeiro" in error] was photographed by Macbride as his type photograph number 10598. The Ule 2720 specimen at Berlin is the type of P. neglectus var. ulei Ruhl. Silveira (1928) cites A. Silveira 237 from near Ouro Preto, collected in 1896. The species has been found in anthesis in March, June, and July.

Ruhland (1903) comments that "Species habitu P. canescenti Koern. valde similis, differt autem ad eo ramo sterili nullo,

bracteis involucrentibus obtusis, et perigoniorum partibus fuscis facile dignoscenda".

Citations: BRAZIL: Minas Gerais: Damazio 701 (B); Glaziou 15539 [Macbride photos 10598] (B—cotype, N—photo of cotype, N—photo of cotype, W—photo of cotype, Z—cotype); Magalhães Gomes 2725 [Herb. Jard. Bot. Belo Horiz. 26706] (B—cotype, N—cotype); A. Silveira 1538 (B—cotype); Souza Araujo 92 [Herb. Lutz 2108] (Z); Ule 2720 (B—cotype).

PAEPALANTHUS DISTICHOPHYLLUS Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): 23. 1835.

Synonymy: Eriocaulon (Paepalanthus) distichophyllum Mart., Flora 24, Beibl. 2: 36. 1841. Eriocaulon distichophyllum Mart. ex D. Dietr., Syn. Pl. 5: 261. 1852. Paepalanthus distichophyllus var. α Körn. in Mart., Fl. Bras. 3 (1): 349. 1863. Dupatyia distichophylla (Mart.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatyia distichophylla Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): 23. 1835; Kunth, Enum. Pl. 3: 518—519 & 624. 1841; Mart., Flora 24, Beibl. 2: 36. 1841; G. Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 510. 1843; Walp., Ann. Bot. Syst. 1: 890 & 891. 1849; D. Dietr., Syn. Pl. 5: 261. 1852; Körn. in Mart., Fl. Bras. 3 (1): 277, 278, 292, 349, 501, & 507, pl. 44, fig. 3. 1863; Steud., Syn. Pl. Glum. 2: [Cyp.] 277 & 333. 1866; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878 (1893) and 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 2, 6, 183—184, [283], 285, & 289, fig. 1 C & 23. 1903; Alv. Silv., Fl. Mont. 1: 405. 1928; Stapf, Ind. Lond. 4: 518. 1930; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 40 & 52. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, 34, & 47. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878 (1946) and 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 234 & 276—277. 1956; Moldenke, Phytologia 4: 140. 1956; Moldenke, Résumé 97, 280, 287, & 486. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé Suppl. 1: 20. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878 (1960) and 2: 401. 1960; Rennó, Levant. Herb. Inst. Agron. 70. 1960; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: [146], 148, & 159. 1969; Moldenke, Fifth Summ. 1: 161 & 480 (1971) and 2: 499, 517, 581, & 950. 1971.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 44, fig. 3. 1863; Ruhl. in Engl., Pflanzenreich 13 (4-30): 6 & 183, fig. 1 C & 23. 1903.

The name, Paepalanthus distichophyllus, seems to have been first validly published by Martius in 1835. This original pub-

lication by Martius, seen by me in the library of the New York Botanical Garden, bears the printed inscription on its title page "Der Akademie mitgetheilt den 6. Juli 1833" and someone has added in pencil "Bonnae 1833". However, Dr. J. H. Barnhart, eminent botanical bibliographer, has appended this notation "I can find no evidence that this paper was published until 1835". Various previous authors have used the 1833 date.

In 1841, when Martius shifted the taxon into the genus Eriocaulon, he described it as "caulibus ramosis, ramis stricte erectis corymbosis; foliis lanceolatis carinatis distichis dense imbricatis caulem ramosque obtegentibus, obtusis cum mucrone, novellis albo-ciliatis; pedunculis 3—6 pollicaribus, solitariis axillaribus vel terminalibus paucis vaginisque glabris. Pulcherrimam speciem unica vice legi in summo monte Itambé, prov. Minarum. Junio floret. Oreas." Kunth (1841), retaining the taxon in Paepalanthus, repeats Martius' 1835 description: "Caulibus erectis, strictis ramisque parvis dense bifariam imbricatis: foliis lanceolatis obtusiusculis cum mucrone, concavis ciliatis; pedunculis dolitariis, lateralibus terminalibusque; capitulis hemisphaericis, albo-villosis; squamis periphericis ellipticis cum mucrone, fuscis, glabris. Mart. — In arenosis montosis districtus Adamantum, in Serra do Itambe, Prov. Minarum. 4."

Körnigke (1863) describes this typical form of the species (his var. α) as "robustior; foliis usque ad basin caulis dense imbricatis et subaeque longis, apice subito in mucronem plerumque incurvum attenuatis". He cites the Martius type collection from "in prov. Minarum arenosis summi montis Itambé, alt. 5000 ped." and also a Wied-Neuwied s.n. from "Brasilia orient."

Ruhland (1903) cites only G. Gardner 5259, Reinhardt & Libon s.n., and Schwacke 8495 -- the first and last in the Berlin herbarium, the second in the Lund herbarium -- all from Minas Gerais. Actually, however, the very first locality which he cites, without collector -- "Prov. Minas Gerais, an sandigen Stellen des Gipfels des Itambé, 1500 m. ü. M." -- seems to be the locality for the type collection of the species, Martius s.n., and it would seem that "Martius" was just omitted as a typographic error by the printer. This type specimen is deposited in the Munich herbarium, where it was photographed by Macbride as his type photograph number 18699. Ruhland also erroneously cites Martius' first publication of the accepted name for this plant as "1833" instead of 1835. He comments that "Planta mihi cum speciebus subsectionis Dichocladi....., sicut Koernicke vult, affinis non esse videtur. Habitus, forma et dispositio foliorum, indumentum sepalorum, vagina transverse truncata et ramificatio manca vel rara nota valde insignia sunt." The G. Gardner 5259, which he cites, is the type collection of var. gardneri Moldenke. Silveira (1928) cites A. Silveira 330 from the Serra do Cipó, collected in 1905.

According to Mendes Magalhães (1956) the species flowers from May to November. Hatschbach collected it at 1200 meters

altitude.

Additional citations: BRAZIL: Minas Gerais: Hatschbach 27372 (N, Z); Martius s.n. [Itambé; Macbride photos 18699] (B—isotype, N—photo of type, W—photo of type); Mendes Magalhães 1899 [Herb. Jard. Bot. Belo Horiz. 41952] (Be—13867, N); Schwacke 8495 (B). MOUNTED ILLUSTRATIONS: Mart., Fl. Bras. 3 (1): pl. 44, fig. 3 (B); drawings & notes by Körnicke (B).

PAEPALANTHUS DISTICHOPHYLLUS var. GARDNERI Moldenke, Fifth Summ.

1: 161 (1971) and 2: 581 & 950, hyponym (1971), nom. nov.

Synonymy: Paepalanthus distichophyllus var. ♂ Körn. in Mart., Fl. Bras. 3 (1): 349. 1863.

Bibliography: G. Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 510. 1843; Körn. in Mart., Fl. Bras. 3 (1): 349. 1863; Ruhl. in Engl., Pflanzenreich 13 (4-30): 184. 1903; Moldenke, Fifth Summ. 1: 161 (1971) and 2: 581 & 950. 1971.

Illustrations: G. Gardn. in Hook., Icon. Pl. 6 [ser. 2, 2]: pl. 510. 1843.

This variety differs from the typical form of the species in being more slender and in having the leaves toward the base of the stem somewhat more remote and much longer, with their apex gradually attenuated into a straight mucro.

The type of the variety was collected by George Gardner (no. 5259) in "arenosis humidis frutectosis montium prope Cidade Diamantina, caput districtus adamantini, Julio" and is deposited in the herbarium of the Botanisches Museum at Berlin. Gardner (1843) illustrates the plant well and notes, in comparing it with typical P. distichophyllus, "My specimens agree, in every respect, with the description given by Martius except in the leaves, which he states to be rather obtuse, while here they are certainly acute". Körnicke (1863) gives as a synonym "Paepalanthus distichophyllus Mart. ex Gardner in Hook., Ic., new ser. 2, pl. 510 (v. s.)" as distinct from the "Paepalanthus distichophyllus Mart., Nov. Act. Nat. Cur." (1835) and of Kunth (1841).

Citations: BRAZIL: Minas Gerais: G. Gardner 5259 (B—type, N—isotype, W—1067050—isotype).

PAEPALANTHUS DIVARICATUS (Bong.) Kunth, Enum. Pl. 3: 515. 1841.

Synonymy: Eriocaulon divaricatum Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 621 & 631, pl. 3. 1831. Paepalanthus divaricatus Kunth ex Körn. in Mart., Fl. Bras. 3 (1): 283 & 329. 1863. Dupatya divaricata (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya divaricata Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Paepalanthus divaricatus (Bong.) Ruhl. ex Alv. Silv., Fl. Mont. 1: 405, sphalm. 1928.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 621 & 641, pl. 3. 1831; Bong., Ess. Monog. Erioc. 21, 22, & 41-43, pl. 3. 1831; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 515, 516, 572, 613, & 624. 1841; D. Dietr.,

Syn. Pl. 5: 261. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 274 & 333. 1855. Körn. in Mart., Fl. Bras. 3 (1): 283, 329, 507, & 508. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878 (1893 and 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 189, 194, [283], 285, & 289. 1903; Alv. Silv., Fl. Mont. 1: 209 & 405. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, 34, & 47. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878 (1946) and 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Phytologia 4: 140. 1952; Moldenke, Résumé 97, 280, 287, 324, & 486. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé Suppl. 1: 20. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878 (1960) and 2: 401. 1960; Rennó, Levant. Herb. Inst. Agron. 70. 1960; Moldenke, Fifth Summ. 1: 161 & 480 (1971) and 2: 499, 581, & 950. 1971.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: pl. 3. 1831; Bong., Ess. Monog. Erioc. pl. 3. 1831.

The type of this species was collected by Ludwig Riedel (no. 1048) in rocky places in the Serra da Lapa, Minas Gerais, Brazil, flowering in November, and deposited in the Leningrad herbarium. Bongard's original (1831) description is "caule ramoso folioso, inferne denudato oblique striato; ramis divaricatis; foliis amplexicaulibus lanceolato-acuminatis, canaliculatis recurvis; pedunculis pilosis; vaginis glabris apice pilosiusculis. Tab. 3. Hab. in arenosis Serra la Lapa. Floret Novembri. 4."

Ruhland (1903) cites only the original collection. Silveira (1928) cites A. Silveira 481 from the Serra do Cipó, Minas Gerais, collected in 1909. The species has been found blooming in January, February, and November, growing at 1300 to 1370 meters altitude. Kunth (1841) affirms its close relationship with P. rigidus (Bong.) Kunth, saying of the latter "Differt a P. divaricato caule strictiore, ramis brevioribus, non divaricatis, foliis planiusculis, pedunculis subpubescentibus, nec pilosis, vaginis glabris, apice non pilosiusculis".

Irwin and his associates describe the plant as a shrub to 1.5 meters tall, the flower-heads sordid-white, and found it growing in soil-filled crevices on rocky slopes with soil-filled pockets and crevices. Anderson and his associates found it growing in wet sandy soil in an area of gently sloping open hillsides with sandy soil and sandstone boulders, mostly wet with seeping water, and rocky areas along a rushing stream at the base of the hill, and describe the flower-heads as white.

The species is certainly closely related to P. nudus Alv. Silv.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35454 (Ld); Brade 13603 [Herb. Jard. Bot. Rio Jan. 25384] (B); Irwin, Reis dos Santos, Souza, & Fonsêca 22168 (N, Z); Maguire, Mendes Magalhães, & Maguire 49246 (N); F. Markgraf 3440 [Brade & Mello Barreto 12222; Herb. Jard. Bot. Belo Horiz. 28622]

(N); Mello Barreto 9474 [Herb. Jard. Bot. Belo Horiz. 25077] (N); L. Riedel 1048 (B--isotype, N--photo of isotype, S--isotype, Ut--354--isotype, Z--photo of isotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS DIVARICATUS var. LATIFOLIUS Alv. Silv., Fl. Mont. 1: 209 (as "latifolia"). 1928.

Synonymy: Paepalanthus divaricatus var. latifolia Alv. Silv., Fl. Mont. 1: 209 & 405. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 209 & 405. 1928; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Résumé 97, 324, & 486. 1959; Moldenke, Fifth Summ. 1: 161 (1971) and 2: 581 & 950. 1971.

This variety is based on A. Silveira 777, collected in dry sandy fields with quartzite stones, between Serra and Datas, in the Serra Geral, Minas Gerais, Brazil, in June of 1925 and is deposited in the Silveira herbarium. On page 405 of his work, Silveira (1928) gives "1928" as the year of collection, but whether this is a misprint or is intended as a correction of the date given on page 209 is not clear. He describes the variety as "Folia ramulorum latiora, patentiatel erecto-arcuata, haud reflexa". It is known thus far only from the type collection.

PAEPALANTHUS DIVERSIFOLIUS Alv. Silv., Fl. Mont. 1: 47--48, pl. 25. 1928.

Synonymy: Paepalanthus diversifolius Alv. Silv., Fl. Mont. 1: pl. 25, sphalm. 1928. Paepalanthus diversifolius Alv. Silv. ex Moldenke, Résumé 324, in syn. 1959.

Bibliography: Alv. Silv., Fl. Mont. 1: 47--48 & 405, pl. 25. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 47. 1946; Moldenke, Phytologia 2: 380. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Moldenke, Résumé 97, 324, & 486. 1959; Moldenke, Fifth Summ. 1: 161 (1971) and 2: 581 & 950. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 25. 1928.

This species is based on A. Silveira 734, collected in dry fields in the region between Campos do Jordão and Jaguaru, near the Serra da Mantiqueira, Minas Gerais, Brazil, in April of 1924 and is deposited in the Silveira herbarium. On page 405 of his work, Silveira (1928) gives "1926" as the year of collection of the type. He comments that "Species ob petalorum tubum brevissimum et antheras magnas distinctissima".

PAEPALANTHUS DOMINGENSIS Ruhl. in Urb., Symb. Ant. 1: 485. 1900.

Synonymy: Paepalanthus tuerckheimii Ruhl. in Urb., Symb. Ant. 7: 173. 1912. Paepalanthus domingensis Ruhl. ex Alv. Silv., Fl. Mont. 1: 405. 1928. Paepalanthus tuerckheimii Urb. ex Moldenke,

Fifth Summ. 2: 592, in syn. 1971.

Bibliography: Ruhl. in Urb., Symb. Ant. 1: 485. 1900; Ruhl. in Engl., Pflanzenreich 13 (4-30): 125, 137--138, & 289. 1903; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 131. 1904; Ruhl. in Urb., Symb. Ant. 7: 173. 1912; Prain, Ind. Kew. Suppl. 5, pr. 1, 183. 1921; Alv. Silv., Fl. Mont. 1: 405. 1928; Moldenke, N. Am. Fl. 19: 41--42. 1937; Moldenke, Phytologia 1: 332--335, 351, 353, 354, 356, 362, & 363. 1939; Moldenke, Known Geogr. Distrib. Erioc. 5, 47, & 55. 1946; Moldenke, Alph. List Cit. 1: 99 & 216 (1946) and 4: 996 & 1012. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 48, 209, & 212. 1949; Moldenke, Phytologia 4: 140--141 (1952) and 4: 207. 1953; Moldenke, Résumé 57, 324, 486, & 490. 1959; Prain, Ind. Kew. Suppl. 5, pr. 1, 183. 1960; Tomlinson, Journ. Linn. Soc. Lond. Bot. 59: 170 & 171, fig. 29 & 30. 1964; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 148, 152, 153, 159--162, 164--169, 184, 187, & 191, fig. 31 L & M & 34 D. 1969; Moldenke, Fifth Summ. 1: 103 (1971) and 2: 581, 591, 592, & 950. 1971.

Illustrations: Tomlinson, Journ. Linn. Soc. Lond. Bot. 59: 171, fig. 29 & 30. 1964; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 152 & 164, fig. 31 L & M & 34 D. 1969.

This endemic species is based on Eggers 2216 and 2216b, collected among rocks at Valle Nuevo, at an altitude of 2270 meters, in the Dominican Republic, flowering at the end of May, 1887, and deposited in the herbarium at Berlin. Ruhland (1903) cites only the original collections, but says "blühend Ende June 1887"; whether this is a misprint or is intended as a correction of the date given by him in his 1900 work, is not clear. He comments (1900) that "Habitu valde insignis et cum speciebus subgeneris Eupaepalanthi Koern. florum structura affinis".

The type of P. tuerckheimii was collected by Hans von Türckheim (no. 3327) -- in whose honor it was named -- in pine woods between Constanza and Río Jimenoa, Loma del Hato Quemado, at 1400 meters altitude, Dominican Republic, flowering in May, and also deposited at Berlin. Ruhland (1912) affirm that "Species valde insignis, in Paepalanthocephalum subgenus, sect. Eriocaulopseum, subsect. Polyactem pertinet. Affines (P. scandens, intermedius etc.) fere omnes in Brasilia indigenae."

Until recently, following Ruhland's clear assertions, I regarded P. tuerckheimii as valid and distinct from P. domingensis. However, my good friend, Dr. Alain Liogier, has made extensive collections of the plants in both type localities and assures me that they appear to be absolutely conspecific. He and other recent collectors report that the species grows in thickets and pinelands, on slopes, in shady places among grass in thickets, and is fairly common in ravines, and frequent in exposed situations, especially in open pine forests, at altitudes of 1400 to 3000 meters. It has been collected in anthesis from May to October. Collectors describe it as a small herb, growing in groups, decumbent or erect, to 20 cm. tall, the inflorescence-heads and flowers white.

Additional & emended citations: HISPANIOLA: Dominican Republic: Alain 12783 (Ld, N, N), 13114 (N, N, N, Z); Augusto & Alain 1524 (N); Chardon 28 (Ba, N); Ekman H.11683 (S), H.13561 (S), H.13667 (Er, S); Fuertes 1748 (Mi, S, Ut--30131); Gastony, Jones, & Norris 288 (N, N, W--2657473); Howard & Howard 9118 (B, S); Liogier 12152 (Ld, N, N), 15456 (N, N), 15968 (Ac, N, N); Thouin 34 (Q); Türkheim 3327 (B, Mi, N, N, N--photo, N--photo, S, S, S, Ut--26085, Ut--26109, Z--photo). Haiti: Ekman H.1385 (S), H.1459 (S), H.1703 (S), H.10660 (Er, S).

PAEPALANTHUS DUBIUS Körn. in Mart., Fl. Bras. 3 (1): 342. 1863.

Synonymy: Dupatya dubia (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya dubia Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 342, 343, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 213--215, [283], & 289. 1903; Alv. Silv., Fl. Mont. 1: 405. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, & 47. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 209. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 97, 280, & 486. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 401. 1960; Moldenke, Fifth Summ. 1: 161 & 480 (1971) and 2: 950. 1971.

This species is based on Vauthier s.n., collected in the Serro Frio, Minas Gerais, Brazil, and deposited in the Munich herbarium. Silveira (1928) cites also A. Silveira 496 from the Serra dos Crystaes in the same state, collected in 1908. Ruhland (1903) cites only the type collection and Glaziou 19957 from the neighborhood of Diamantina, Minas Gerais, deposited in the Berlin herbarium, and comments "Specimina a cl. Glaziou collecta ad descriptionem Koernickeanam atque ad eius plantam originariam, quam ex herb. Monac. vidi perbene quadrant. A praecedente [P. macrorrhizus (Bong.) Kunth] foliis acutis, calvescentibus, bracteis involucribus latioribus atque pallidioribus, quarum intimae non longe cuspidatae, bene differt. Vaginae duplo quam folia longiores." The plant has been collected in anthesis in April.

Citations: BRAZIL: Minas Gerais: Glaziou 19957 (B, Z).

PAEPALANTHUS DUIDAE Gleason, Bull. Torrey Bot. Club 58: 329--330. 1931.

Bibliography: H. A. Gleason, Bull. Torrey Bot. Club 58: 329--330. 1931; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Fedde & Schust. in Just, Bot. Jahresber. 59 (2): 19. 1939; Moldenke, Known Geogr. Distrib. Erioc. 6 & 47. 1946; Moldenke, Alph. List Cit. 2: 352 (1948) and 3: 975. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 64 & 209. 1949. [to be continued]